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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/450,687

11/30/1999

DONALD J. CURRY

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09/16/2004

OLIFF & BERRIDGE PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

COUSO, YON JUNG

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/450,687

Applicant(s)

CURRY, DONALD J.

Examiner

Yon Couso

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. Applicant's arguments with respect to claims 1-5, 7-27 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caklovic, 5,974,179.

For claim 1, selecting N raster lines extending in the first direction is provided by Caklovic in Figs. 1 and 7a explicitly showing raster lines of pixel data, and in the first full paragraph in c. 4, the paragraph bridging cols. 4-5, and the first full paragraph in c. 5, where four raster lines are used as an example only. Raster is provided by the rectangular pattern of scan lines, which is the basic definition of raster. Reformatting the image by successively interleaving pixels corresponding pixels of each of the N raster lines extending in the second direction is explicitly shown by Caklovic in Figs. 2 and 7b, and again in the first full paragraph in c. 4, the paragraph bridging cols. 4-5, and the first full paragraph in c. 5, where pixels from different raster scan lines are interleaved, and only certain pixels correspond to other pixels in the reformatted interleaved image as clearly shown (e.g. single pixels a0 – d0 and a1 – d1 correspond to two dimensional block B(0,0) in Figs. 1-2 respectively.

Even though Caklovic does not teach details on reformatting the image by successive interleaving only a single corresponding pixel of each of the N raster lines extending in the second direction, Caklovic clearly teaches reformatting the image by successive interleaving corresponding pixels of each of the N raster lines extending in the second direction (Figs. 2 and 7, and again in the first full paragraph in c. 4, the paragraph bridging cols. 4-5, and the first full paragraph in c. 5). Caklovic discloses in an embodiment, 2X4 pixel area (column 4, lines 7-9). Caklovic also discloses that "adjoining picture area of other configurations are also possible, although the a picture area having, as the number of pixels, a multiple of eight is preferred in an implementation where 8-bits bytes are addressed" (column 4, lines 22-26). Given Caklovic reference at the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify the pixel area to 1X8 as well as 4X2. In the case of the pixel area being 1X8, Caklovic's teaching one would reformat the image by successive interleaving only a single corresponding pixel of each of the N raster lines extending in the second direction. The motivation for doing this is in the Caklovic where it is suggested that the different configuration of picture area is possible and a multiple of eight is preferred in an implementation where 8-bits bytes are addressed (column 4, lines 22-26).

Compressing the reformatted interleaved data is provided by Caklovic in Fig. 5a, block 502.

For claim 2, wherein successively interleaving only a single corresponding pixel of each of the N selected raster lines comprises selecting a next pixel along the second

direction from each of the N selected raster lines is provided by Caklovic where cited above, where the second direction is vertical by the example of Caklovic having four vertical scan lines a-d for example, vertical being explicitly cited in the first full paragraph in c. 4. Forming at least one byte of reformatted interleaved data from the raster data of the selected pixels of the N selected raster lines is provided by Caklovic where cited above, particularly the first full paragraph in c. 4, where eight bit bytes are preferred, but not necessary. Storing the at least one byte is provided by Caklovic again in at least the first full paragraph in c. 4, and as shown where cited above, where the rearranged data is stored and addressable.

For claims 3-4, wherein compressing the reformatted interleaved data compresses using at least one byte oriented compression technique to compress the reformatted interleaved data, wherein the byte-oriented compression technique is at least one of LWZ, ZIP, and Compress (see the second full paragraph on page 3 of the Applicant's specification) is provided by Caklovic in at least the abstract, which compress the bytes noted in the first full paragraph in c. 4, the first full paragraph in c. 2, and compressor 502 in Fig. 5a.

For claim 5, inputting compressed interleaved data is provided by the input from block 505 in either Fig. 5a or 5b to block 503 in Fig. 5b of Caklovic. Decompressing the compressed interleaved data is provided by block 503 in Fig. 5b of Caklovic. Successively un-interleaving the decompressed interleaved data to create raster image data for the restored image, the raster image data defining a plurality of raster lines

extending in a first direction, each raster line having a plurality of pixels extending in a second direction is provided by block 504 in Fig. 5b, the last full paragraph in c. 4, the final image being a 2D raster pattern of lines extending in a direction, while the lines extend in another direction. Selecting at least one next byte of the decompressed interleaved data, and distributing each bit of the at least one byte to only a single corresponding pixel in each N raster line of the restored image is provided by Caklovic in the last full paragraph in c. 4, the second full paragraph in c. 5, and Fig. 8, and Fig. 5b, block 504, which all provide for the reverse of the interleaving process by Fig. 5a, block 501, explicitly using bits of each byte.

For claim 7, see the rejection of at least claim 1. Raster image data includes lines extending in a direction. A plurality of lines extends in one direction, while any one line extends into another.

For claim 8, see the rejection of at least claim 2.

For claims 9-10, see the rejection of at least claims 3-4.

For claim 13, see the rejection of at least claims 1 and 5, which provide for all the limitations of claim 13, which cite numerous places in Caklovic. As an overview and for reiteration, the following is provided: For reformatting binary image data into reformatted image data, see block 501 in Fig. 5a, and as discussed above. For compressing the reformatted image data, see Fig. 5a, block 502, and as discussed above. For decompressing the compressed reformatted image data, see block 503 in Fig. 5b, and as discussed above. For reverse reformatting the decompressed image data into binary image data, see block 504 in Fig. 5b, and as discussed above.

For claim 16, storing the compressed reformatted image data between the compressing and decompressing steps is provided by Caklovic by storing medium block 505 in Figs. 5a-b.

For claim 17, retrieving the compressed reformatted image data between the storing and decompressing steps is provided by Caklovic by storing medium block 505 in Figs. 5a-b feeding the decompressor block 503, where the storing medium is in-between.

For claim 18, see the rejection of at least claims 1 and 5.

For claim 19, see the rejection of at least claim 2.

For claim 20, see the rejection of at least claim 3-4.

For claim 21, see the rejection of at least claims 3-4.

For claim 22, selecting at least one next byte of the decompressed interleaved data, and distributing each bit of the at least one byte only to a single corresponding pixel in each of the N raster lines of the restored image is provided by Caklovic in the last full paragraph in c. 4, the second full paragraph in c. 5, and Fig. 8, and Fig. 5b, block 504, which all provide for the reverse of the interleaving process by Fig. 5a, block 501.

For claim 11, see the rejection of at least claims 5 and 22. The interleaved data that was reformatted by successively interleaving only a single corresponding pixel of the data is provided by Caklovic as noted above for claim 1. An output controller outputting the un-interleaved data to an output device is not explicitly provided by Caklovic. But, an output controller outputting the un-interleaved data to an output

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device is also considered at least obviously, if not inherently, provided by Caklovic, and would've been obvious to one having ordinary skill in the art at the time the invention was made, because the invention of Caklovic relates to "binary representation of an image" (emphasis added) in c. 1, lines 6-9, and of course, typical output devices are explicitly noted by Caklovic in the first full paragraph in the Background including "facsimile" or a "laser printer", and also where the "original one-bit-per-pixel binary image is recovered by a corresponding decompression when required to be rendered for display or print", where an output controller must be provided, since otherwise the final processed data could not be printed by the output device (e.g. fax, printer, or display). The Background of Caklovic recites that after recovering the original binary image, it is "rendered for display or print", which requires that the recovered data be outputted for display or print. The second full paragraph in c. 5 of Caklovic explicitly includes "output control signals", which are clearly shown coming externally from without, thus providing for "an output controller that outputs the un-interleaved data", and in the case of the digital computer software implementation of Caklovic, at least the microprocessor and/or computer's output provide for output control. Thus, if "output control signals" exist, then there is clearly an output controller. It would've been obvious to one having ordinary skill in the art at the time the invention was made that Caklovic provide for an output control and an output device, since the Background of Caklovic explicitly teaches well known and conventional output devices for which the invention of Caklovic is clearly intended as reasoned above, and because the computer software and/or hardware clearly also have control over the output as reasoned above.

For claim 12, wherein the decompressor is a byte-oriented compressor technique decompressor is provided by Caklovic, since the decompressor corresponds to the byte oriented compressor of Caklovic in at least the abstract, which compress the bytes noted in the first full paragraph in c. 4, the first full paragraph in c. 2, and compressor 502 in Fig. 5a. Both the preprocessor and postprocessor blocks 501 and 504 in Figs. 5a and 5b respectively process bytes and correspond to each other in the second full paragraph in c. 5, with the compressor-decompressor combination in between, so that the decompressor is also byte-oriented. Furthermore, the decompressor must correspond to the same type of compressor, since otherwise the data could not be properly decompressed, and Caklovic discloses only the byte-oriented compressor and decompressor.

For claim 14, transmitting the compressed reformatted image data between the compressing and decompressing steps is considered at least obviously provided by Caklovic, because the first full paragraph in the Background in c. 1 of Caklovic does in fact teach that "a binary image is typically used in a facsimile **transmission**" (emphasis added) and that a "binary image is often compressed to a more compact format to allow the binary image to occupy less storage space or a shorter **transmission** time" (emphasis added). It would've been obvious to one having ordinary skill in the art at the time the invention was made to include transmitting a compressed image to a decompressor, since the Background of Caklovic teaches at least the advantages of a

short transmission time, since Caklovic provides for "higher level of compression", and because transmitting itself provides for the ability to send information to a remote location, and for such conventional uses as facsimile.

For claim 15, see the rejection of at least claim 14, and also block 505 in Figs. 5a-b, where the alternative to storage is transmission where cited above, and therefore reception to the decompressor block 503.

For claim 23, see the rejection of at least claims 7 and 11.

For claim 24, see the rejection of at least claim 2.

For claim 25, see the rejection of at least claims 3-4.

For claim 26, see the rejection of at least claims 3-4.

For claim 27, see the rejection of at least claim 12.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yon Couso whose telephone number is (703) 305-4779. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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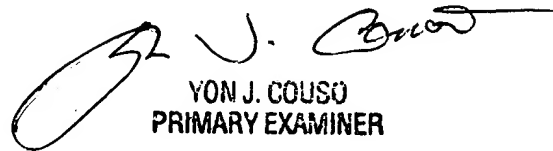
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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YJC

September 14, 2004



YON J. COUSO
PRIMARY EXAMINER